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can still be found elsewhere. It is the termination of the opportunity to study various interesting problems of potamology and phytogeography,\* as for example, how so many coastal plain plants managed to establish themselves or persist in these interior localities. As no two shoals are exactly alike, the effacement of any one of them is an irreparable loss. But as it is impossible to measure such a loss in money, there is not much hope that the interests of science will ever be permitted to outweigh those of commercialism.

## A NEW NORTHEASTERN SEDGE

BY KENNETH K. MACKENZIE

In addition to several species, which are also of wide European distribution, the group of which *Carex flava* L. is best known, is represented in the northeastern part of North America by a widely distributed plant which is unlike anything known from Europe. In all the European species of the group characterized by long beaked perigynia, the perigynia beaks are rough and strongly brownish-red tipped at the apex and the pistillate scales are also strongly brownish-red colored and very conspicuous in the spikes. In the American plant under discussion the perigynia beaks are smooth or obscurely few-toothed, under a microscope, and are whitish at the apex when young or in age are light tawny colored. The brownish-red tint is lacking in the scales, and the scales are very inconspicuous in the spikes, at maturity being concealed by the perigynia. These characters give this plant a markedly different appearance from that presented by the other members of this group, and enable it to be readily recognized in the field.

This plant was long ago recognized as distinct from *Carex flava* L. by Dewey, who treated it as identical with the European *Carex lepidocarpa* Tausch. Olney distributed various specimens

\* See Bull. Torrey Club 32: 161. 1905; 37: 109. 1910; Geol. Surv. Ala. Monog. 8: 148. 1913. Since the last publication appeared the dam of the Coosa River there referred to has been completed, flooding several square miles of country, including an unrecorded station for *Sabal glabra*, among other things.

of it as *Carex flava* L. and forma *androgyna* and forma *lepidocarpa* and remarked that the forms with a nearly sessile staminate spike and the forms with a strongly peduncled staminate spike were often found in the same clump (Olney Car. Bor.-Am. 7). Bailey treated the plant as *Carex flava* var. *graminis* Bailey, but probably included other elements in his conception of his variety, especially the plant covered by his reference to the rough beaked perigynia. The plant treated by Prof. Fernald as *Carex flava* var. *rectirostra* Gaudin is almost entirely the present species, as is also a portion of the plant he treats as *Carex flava* var. *elator* Schlecht. The description of the plant called *Carex lepidocarpa* Tausch by me in Britton & Brown's Illustrated Flora (2d ed.) is also taken from the present species.

When the really distinguishing features of this plant are, however, understood, it is readily told from all its allies and should no longer be confused with any of them.

*Carex flava*, itself, is further distinguished by the noticeably longer perigynia (5-6 mm. long), the leaf-blades averaging wider (2-5 mm. wide), the sharper culms and more yellowish aspect of the whole plant. The tendency of the pistillate spikes to be staminate at the top is also much less developed.

In North America genuine *Carex lepidocarpa* seems to be confined to the extreme northeastern part. I have seen specimens only from the Gaspi region and from St. Pierre. The extremely long-peduncled staminate spike usually serves as an additional means to distinguish this species.

What I take to be the plant described from Maine by Kükenthal (Pflanzenreich IV<sup>20</sup>: 673) as var. *laxior* of *Carex lepidocarpa* Tausch is more closely allied, but in addition to the points already discussed can be distinguished by its sharp-angled culms and green shorter-beaked perigynia. The beaks of the perigynia in this plant are exceptionally rough.

I have seen numerous specimens of this species which show that it ranges from Maine and Quebec as far West as Indiana and Wisconsin. In New Jersey, where I have become well acquainted with it, it is confined to the northwestern counties where it occurs in wet calcareous meadows, in which situation

it is often locally common. My number 4645 collected at White Pond, Sussex County, near Andover Junction, on June 26, 1910, may be designated as the type.

The species may be described and known as:

***Carex cryptolepis* sp. nov.**

"*Carex lepidocarpa* Tausch," Dewey, Wood's Class Book (2 Ed.). 585. 1847.

*Carex flava* L. var. *graminis* Bailey, Mem. Torr. Club 1: 30 (in part). 1887.

"*Carex flava* L. var. *rectirostra* Gaud." Fernald Rhodora, 8: 211 (in part). 1906.

"*Carex flava* L. var. *elatio*r Schlecht." Fernald l. c. (in part). 1906.

"*Carex lepidocarpa* Tausch," Mackenzie in Brit. & Brown Ill. Flora (2d ed.): 430 and fig. 1076. 1913.

Densely cespitose, not stoloniferous, the culms erect, slender. 2-6 dm. high, smooth or very nearly so, obtusely triangular below, acutely triangular above, phyllopodic, light brown at base, exceeding culm leaves, but mostly exceeded by leaves of sterile shoots. Leaves 4-6 to a fertile culm, on lower fourth, but not bunched, light green, the blades erect, flat, 1.5-3 mm. wide, usually 0.5-2.5 dm. long, roughened towards apex, not strongly septate, the sheaths conspicuously white-hyaline ventrally, not prolonged upwards at mouth; sterile shoots phyllopodic, conspicuous, the blades averaging longer. Staminate spike subsessile to strongly peduncled, 7-18 mm. long, 2-3 mm. wide, occasionally partly pistillate at base, its scales oblong-lanceolate, greenish-yellow with green midvein, acute. Pistillate spikes 3 or 4, the upper one or two approximate, the next strongly separated and the lowest often very strongly separated, mostly staminate at apex, sessile or lower exsert-peduncled, oblong, 10-20 mm. long, 7-10 mm. wide, closely 15-35 flowered in many ranks, the upper perigynia ascending, the middle spreading and the lower reflexed; bracts leaf-like, sheathing, the lower with erect, the upper with widely spreading blades. Scales lanceolate, acute, greenish-yellow with green midvein, narrower than and about length of body of perigynia, concealed and inconspicuous at maturity. Perigynia light- or yellowish-green, or at maturity yellowish, 4-4.5 mm. long, the body obovoid, 1.75 mm. wide, inflated, suborbicular in cross-section, the upper part empty,

coarsely about 10-nerved, round-tapering to a sessile base, abruptly slender beaked, the beak nearly as long as body, straight or the lower bent, smooth or very obscurely few toothed, prominently bidentate, the teeth smooth, closely contiguous to one another, whitish or in age light tawny tinged. Achenes obovoid, triangular, 1.5 mm. long, 1 mm. wide, blackish, slightly silvery shining, prominently pitted, apiculate, jointed with slender, bent, at length deciduous style. Stigmas three.

## SPECIMENS EXAMINED

QUEBEC. Notre Dame du Lac, *Northrop* 202, Aug. 13, 1887 (C); Lake Edward, *Brainerd*, Aug. 1, 1901, and Aug. 21, 1896 (B).

MAINE. Mt. Desert Island, *White*, Sept. 5, 1891 (C); Moosehead Lake, *C. E. Smith* (C); Great Pond, Mt. Desert Island, *Rand*, June 23, 1892 (C).

VERMONT. Stratton, *Brainerd* (B) and also *Grout*, July 4, 1895 (C); East Wallingford, *Eggleston* 1684, July 11, 1899 (N. Y.); Newfane, *Howe*, Aug. 1, 1891 (N. Y.); Lake Dunmore, *Brainerd*, July 11 and Aug. 11, 1896 (B); East Middlebury, *Brainerd*, July 12, 1890 (B); Sudbury, *Brainerd*, Aug. 14, 1896 (B); Enosburgh, *Brainerd*, July 17, 1895 (B).

MASS. Essex Co., *Oakes* (N. Y.); Needham, *Forbes*, July 18, 1902 (K. M.).

RHODE ISLAND. Providence, *Olney*, marked "C. lepidocarpa Dewey! Tausch? not of Kunze!" (C); Cumberland and East Providence, *Olney*, July 22 and 26, 1871 (C & N. Y. & K. M.); *Thurber* 1846 (N. Y.).

NEW YORK. Lake Mohegan, *Leggett*, July 9, 1868 (C); Pyramid Lake, *Britton*, Sept. 2, 1900 (N. Y.); Whitesboro, *Haberer*, June 1883 in part (N. Y.); Adirondack Mts., *E. C. Howe*, July (N. Y.); Paradox Lake, *Brainerd*, Sept. 9, 1882 (B).

NEW JERSEY. Waterloo, *Britton and Porter*, July 28, 1885 (C); Stanhope, Morris Co., *Mackenzie* 2118, June 24, 1906 (K. M.); White Pond, Sussex Co., *Mackenzie* 826, July 31, 1904 (K. M.); Andover Junction, Sussex Co., *Mackenzie* 4671, July 26, 1910 (K. M.).

ONTARIO. Sarnia, Lambton Co., *Dodge*, Aug. 1, 1911 (K. M.); e Victoria, *Brainerd*, Sept. 13, 1901 (B).

MICHIGAN. Grand Rapids, *Miss Cole*, June 8, 1892 (K. M.); Harsen's Island, St. Clair County, *Dodge*, July 18, 1911 (K. M.); Port Huron, St. Clair County, *Dodge*, July 17, 1911 (K. M.).

INDIANA. Grass Lake, Steuben Co., *Deam* 1202, July 22, 1906 (N. Y. & K. M.); Wolf Lake, *Mrs. Chase* 1396, July 26, 1900 (K. M.).

WISCONSIN. Milwaukee, *Hasse*, June 25, 1882 (N. Y.).

## ADDITIONS TO THE PLEISTOCENE FLORA OF THE SOUTHERN STATES\*

BY EDWARD WILBER BERRY

During the last few years I have collected or received for identification several small collections of fossil plants from various localities and horizons in the Pleistocene of North Carolina, Alabama and Mississippi, and since these should be a matter of published record for the benefit of botanists and others interested in the question of the former distribution of existing species, the following brief compilation has been made.

### NORTH CAROLINA

The first of these collections is from North Carolina. A most interesting deposit containing fossil plants was discovered in 1906 on the right bank of the Neuse River about four and one-half miles above Seven Springs in Wayne County. The section shows at its base a tough blue clay interstratified with layers of leaves, fruits, wood, and other vegetable débris, overlain by sand and gravel, and exposed in the recent cutting of the river.† The manner of occurrence indicates that at the time of deposition the locality was at the head of a Pleistocene estuary, the plant material accumulating exactly as it is at the present time along the coastal plain rivers. The collection from this locality was of such exceptional interest that a short account of it was published in 1907.‡ Thirty-eight species were listed, the locality

\* Published with the permission of the Director of the U. S. Geological Survey.

† The deposits are referred to the Chowan formation by Stephenson, N. C. Geol. Surv., 3: 285. 1913.

‡ Berry, E. W., Journ. Geol. 15: 338-349. 1907.